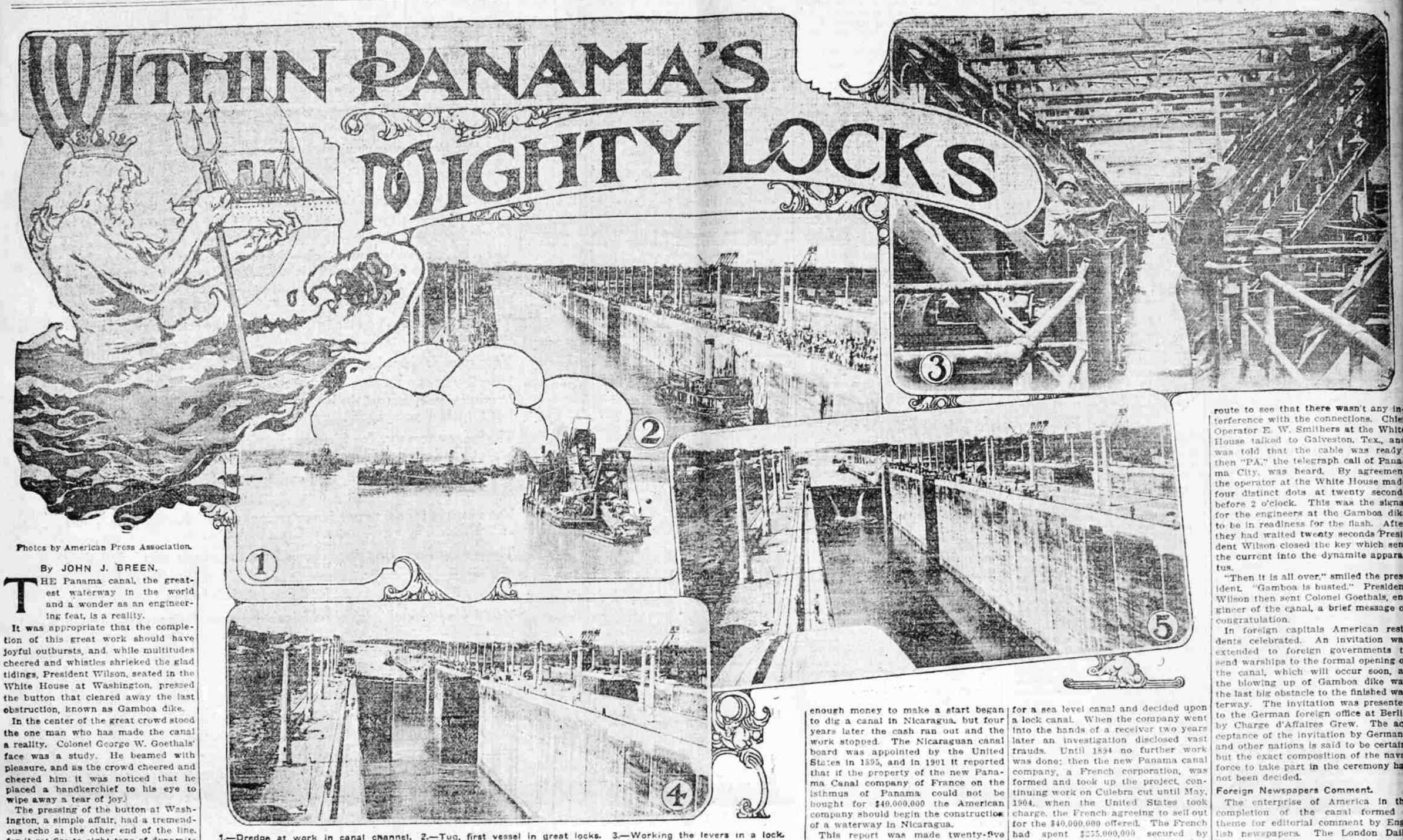
A PAGE OF TIMELY READING

WITHIN PANAMA'S MIGHTY LOCKS



Photos by American Press Association.

1.—Dredge at work in canal channel. 2.—Tug, first vessel in great locks. 3.—Working the levers in a lock. 4.—Opening of the gates. 5.—Part of lock being filled for passage of small vessel.

By JOHN J. BREEN.

THE Panama canal, the greatest waterway in the world and a wonder as an engineering feat, is a reality.

It was appropriate that the completion of this great work should have joyful outbursts, and, while multitudes cheered and whistles shrieked the glad tidings, President Wilson, seated in the White House at Washington, pressed the button that cleared away the last obstruction, known as Gamboa dike.

In the center of the great crowd stood the one man who has made the canal a reality. Colonel George W. Goethals' face was a study. He beamed with pleasure, and as the crowd cheered and cheered him it was noticed that he placed a handkerchief to his eye to wipe away a tear of joy.

The pressing of the button at Washington, a simple affair, had a tremendous echo at the other end of the line, for it set fire to eight tons of dynamite which shattered the last natural obstruction. With the explosion the hills reverberated, and the thousands of sightseers who had been kept at a safe distance preceding the explosion pressed forward to see the effect of the terrific blast while Colonel Goethals and engineers from all parts of the world made their way to get a scientific idea of the result.

Vessels Already In Canal.

The splendid work was done. The waters of Gatun lake, which for a week had been flowing slowly into the cut through five pipes, rushed into the great gash and the Panama canal was completed, except for the finishing touches and the dredging and widening of the channel. It now is a labor of muscle rather than mind. With the smashing of the wall separating the cut from Gatun lake the way from ocean to ocean is as open, though not as deep, as it will ever be. The passage of any light vessel through the canal is possible. While the blowing up of Gamboa dike was attended by appropriate ceremonies, the real big time will occur when the last two earth slides are cleared away.

The dike at Gamboa was at the entrance of Culebra cut nearest the Atlantic ocean and was built to hold back the waters of Gatun lake. It was formed of earth and rock taken from the cut itself. Railroad trains ran across the top of the dike, and it had been used as a means of reaching the villages on the northern—so called, but in reality the western—bank of the canal. At this point also was the spot where the river Chagres flowed into Gatun lake and where the ancient Spaniards, bound across the isthmus, left the river and began to make the rest of the journey on foot.

Although the canal has been contemplated for 400 years, it was not until 1825 that the United States took an interest in it. Prior to that time the Spaniards had led the way. In 1825 the Nicaraguan route became the subject of an investigation by the United States. A company was formed in New York in 1826 for the opening of a canal from the Atlantic to the Pacific by way of Nicaragua, but it failed, the promoters being unable to raise the money for surveys.

President Grant Made Survey.

President Grant, in 1869, had a survey made of the Nicaraguan and Panama routes, and the report favored the former. An American company with enough money to make a start began to dig a canal in Nicaragua, but four years later the cash ran out and the work stopped. The Nicaraguan canal board was appointed by the United States in 1895, and in 1901 it reported that if the property of the new Panama Canal company of France on the isthmus of Panama could not be bought for $40,000,000 the American company should begin the construction of a waterway in Nicaragua.

This report was made twenty-five years after the government of Colombia granted a concession for a canal in Panama to a French company and twenty years after the Universal Interoceanic Panama Canal company with Ferdinand de Lesseps as the nominal head, took up the work. It was soon discovered by the French that the $127,000,000 estimate for the cost of the canal was ridiculously small. From the start the French were handicapped. Yellow fever found many victims, and malaria or Chagres fever attacked others. Then there was the interference of Colombian officials.

In 1887, seeking retrenchment, the French company abandoned the plans for a sea level canal and decided upon a lock canal. When the company went into the hands of a receiver two years later an investigation disclosed vast frauds. Until 1894 no further work was done; then the new Panama canal company, a French corporation, was formed and took up the project, continuing work on Culebra cut until May, 1904, when the United States took charge, the French agreeing to sell out for the $40,000,000 offered. The French had spent $255,000,000 secured by bonds having a face value of $425,000,000.

President Presses Button.

The incident of President Wilson touching the button which meant the end of the canal construction was remarkable for its simplicity. He finished his lunch—the blowing up was set for 2 o'clock in the afternoon—left the White House for his office in the executive building and touched the button—as if he was summoning a messenger or stenographer. This act detonated the dynamite stowed in the Gamboa dike. Telegraphers had been busy arranging for the epochal event. Men were stationed along the long route to see that there wasn't any interference with the connections. Chief Operator E. W. Smithers at the White House talked to Galveston, Tex., and was told that the cable was ready; then "PA," the telegraph call of Panama City, was heard. By agreement the operator at the White House made four distinct dots at twenty seconds before 2 o'clock. This was the signal for the engineers at the Gamboa dike to be in readiness for the flash. After they had waited twenty seconds President Wilson closed the key which sent the current into the dynamite apparatus.

"Then it is all over," smiled the president. "Gamboa is busted." President Wilson then sent Colonel Goethals, engineer of the canal, a brief message of congratulation.

In foreign capitals American residents celebrated. An invitation was extended to foreign governments to send warships to the formal opening of the canal, which will occur soon, as the blowing up of Gamboa dike was the last big obstacle to the finished waterway. The invitation was presented to the German foreign office at Berlin by Charge d'Affaires Grew. The acceptance of the invitation by Germany and other nations is said to be certain, but the exact composition of the naval force to take part in the ceremony has not been decided.

Foreign Newspapers Comment.

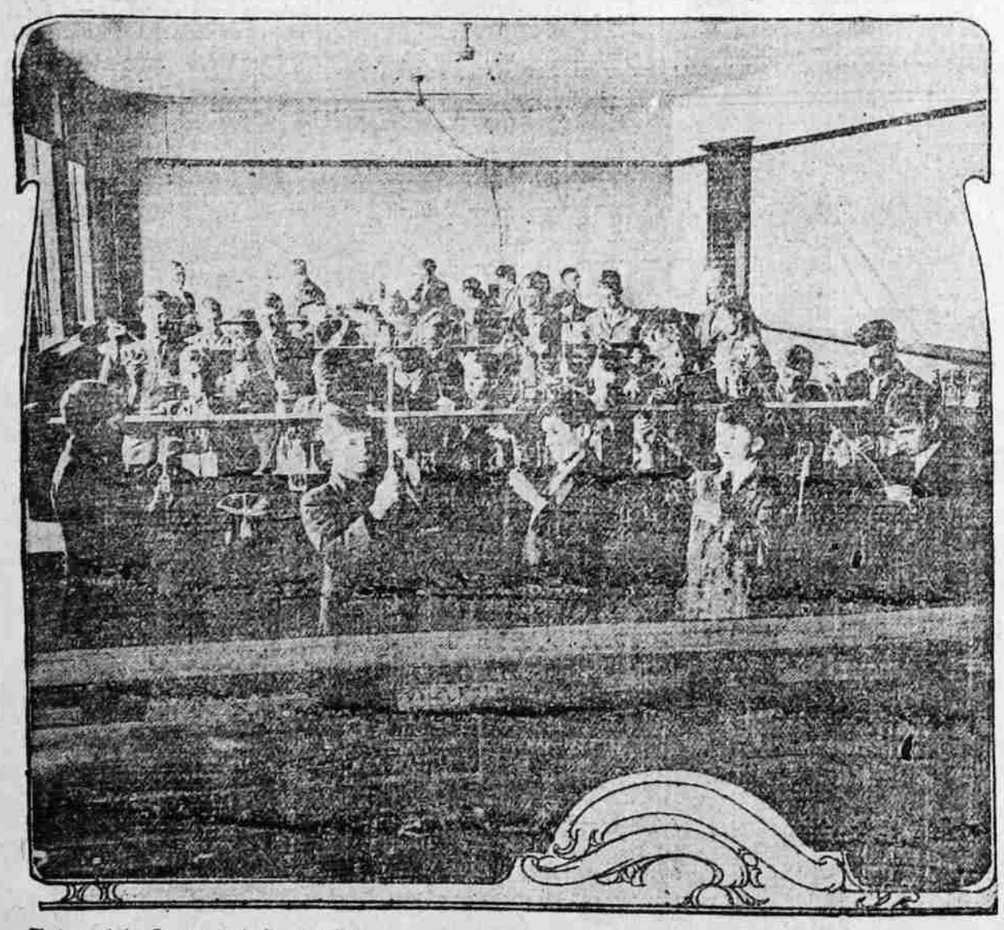
The enterprise of America in the completion of the canal formed a theme for editorial comment by English newspapers. The London Daily News said:

"The Panama canal will stand for all time as a monument to the engineering skill of the American nation in general and of Colonel Goethals in particular. The conquest of pestilence by the Americans in the canal area will always mark an epoch in medical and sanitary progress."

The Daily Telegraph said:

"England extends to the United States congratulations as hearty as those of any other nation. The whole civilized world admires the courage with which the republic's engineers have overcome the countless and all but insuperable difficulties of a truly wonderful enterprise."

VOCATIONAL SCHOOLS AGITATE EDUCATORS AND LABOR



Photograph by Oregon Agricultural college.

Schoolboys Making Chemical Experiment.

VOCATIONAL training in connection with the public school systems is agitating many cities in the United States and is a departure which may lead to mixed results. While in some cities trade unions have regarded with suspicion the new movement, in others, it is said, the labor bodies have given it their approval.

Recently there was a labor shortage in Detroit. Garment manufacturers and other firms employing young women found that they couldn't get any one to do the work. The matter was taken up with the board of education and a vocational school bureau was started. Several girls who had just left school were approached by leading women of the city. They were offered good pay by the manufacturers who were confronted with a decided scarcity of labor. While many of the young women preferred more genteel employment, the wages that were offered and the simplicity of the work proved attractions and many took the jobs. Even then there was an additional demand for workers, and the board of education is considering the formation of vocational classes in many of the schools.

The United States bureau of education has given a great deal of time to the subject and recently issued a bulletin in which it showed what has been accomplished. The bulletin demonstrates how shops and schools may, and do, unite in many communities. There is contained in the bulletin a detailed study of co-operative systems in York, Pa.; Fitchburg, Mass.; Hammond, Ind.; Lansing, Mich., and Beverly, Mass., where pupils spend half time in schools and the other half in shops, with the consent of the employers.

Edward G. Cooley of Chicago is an advocate of vocational schools separate from the public schools. Incidentally he has a criticism of the manual training schools, of which there are many in Chicago and Illinois. He asserts that the instructors in these schools are not qualified and that they know but little of the mechanical arts or the tools that are in use.

The manual training school is characterized as "incidental." The vocational schools as proposed would aim to fit pupils for the vocations in which they hope to gain their livelihood. A boy who may not take kindly to Latin, the higher branches of mathematics or English literature might be a mechanical genius simply awaiting the development he could attain under a proficient teacher. After his instruction in the vocational school he could go to a producing shop.

The co-operative industrial school plan has been in operation in Fitchburg, Mass., for five years, and many cities have written to the board of education there to get its ideas.

There is a four year course. The first is spent entirely in school. In the next three years the pupil alternates between school and shop, spending a week in each. The co-operation of the employers has been a big factor in the successful working out of the system. They offer apprenticeships at present in the machinist trade, pattern making, sawmaking, iron molding, tinsmithing, printing, textile work and office work. There is, however, no limit to the trades that may be chosen. The entrance requirements are the same as for entrance to high school.

At the end of the first year of schooling a trial period of two months is begun in the shops. Thereafter an agreement to continue is signed by the parents and employer, under which the pupil is to continue the course to its completion. The employer on his part undertakes to teach the pupil the rudiments of the trade designated in the agreement. This serves as a contract between the parent and manufacturer, and it tends to keep the boy in school and to secure proper care and treatment for him.

ARTHUR J. BRINTON.

"UPSIDE DOWN"

THE announcement that the incomparable Pegoud, the acknowledged king of the air, who has amazed the world by flying in an airship upside down, would come to the United States caused a big stir and gave an added impetus to the science of aviation in America.

Pegoud today is the most talked of man in the aviation world. France and all other nations sat up and took notice when he made a parachute drop from an aeroplane 900 feet in the air, but this feat wasn't a circumstance to the one he performed the next day, when he thrilled thousands with what might be termed a trapeze act. Actually Pegoud causes his monoplane to describe a gigantic "S" in the sky, during which time he was flying upside down for about a quarter of a mile.

Aviators agree that Pegoud's sensational movements in the air will reduce to a minimum the dangers attendant on flying. He plans to show that the danger of death when an airship capsizes can be averted if the air man retains his self possession and knows just what to do.

Therefore his "stunt" is educational rather than acrobatic. He proceeds to put his machine in all possible positions and then rights it. Aviators who have watched him unite in declaring that when Pegoud's skill is mastered by other air pilots the death list from airships tumbling will be short indeed and a big step has been taken in the conquest of the aerial regions. Instead of being a dare devil, he has advanced to the dignity of an instructor in a science the possibilities of which cannot even be guessed.

After climbing into his monoplane Pegoud rose to a height of 2,000 feet; then began a fall toward earth, while the onlookers were breathless. He turned his plane on its back and rose again. Still in an inverted position he went on and up until at one time the monoplane was upright in the air, standing on its tail, so to speak. The momentum of the machine took him in safety until, a fraction of a second later, he was right side up again on the top of the aerial circle.

Pegoud finally alighted in a tree and, bandying jokes with the crowd, refused to come down. Then he dropped to terra firma, and after he had been almost mobbed by the most enthusiastic was carried off on the shoulders of the army air corps men. He did not receive a penny for his services. Pegoud is twenty-six years old and, like all French aviators, doesn't know the meaning of the word danger.

PEGOUD TO BE SEEN IN AMERICA

He has a comfortable income of his own and has gone into the art of flying purely for the excitement of the thing. After terminating his service with the French army, during which time he won distinction and promotion in the Morocco campaign, he began to study aviation with Louis Bleriot. In a few months he became the most talked of air pilot in the world.

Photos by American Press Association.

Pegoud Carried on Friends' Shoulders After Flight. Upper Left Corner, His Machine In Flight Upside Down.

Before any of his most recent wonderful feats Pegoud had earned a reputation for daring and originality. In fact, he was regarded as the most venturesome pilot in France where venturesome pilots abound. Only two weeks before he had tested M. Bonnet's parachute invention. The test was replete with excitement and thrills.

After landing from his "upside down" feat Pegoud said that the motor was running at only quarter speed while the aeroplane was upside down. He continued:

"The machine was completely under my control. I could have flown farther in the reversed position, but no object was to be attained by doing this. Besides, hanging downward for a long time brings blood to the head and would cause inconvenience.

"It is easily conceivable that some persons might immediately suffer from congestion and thus lose control of the apparatus. I, however, felt no such danger."

WALTON WILLIAMS.